Form 3160-5 (August 2007)

# **UNITED STATES** DEPARTMENT OF THE INTERIOR -**BUREAU OF LAND MANAGEMENT**



FORM APPROVED

OMB No. 1004-0137 Expires: July 31, 2010

Do not use this t	OTICES AND REPOR form for proposals to Use Form 3160-3 (AP	drill or to	re-enter an		6. If Indian, Allottee o	r Tribe	Name	
SUBMI	T IN TRIPLICATE - Other in	structions on	page[2ureau	of Land	Teld Office. 711f.Unit.of.CA/Agree	ment,	Name and/or No.	
I. Type of Well			· o Caroaa	0, 20,10				
✓ Oil Well ☐ Gas W	ell Other				8. Well Name and No. Escrito D34-2409 01	Н		
2. Name of Operator Encana Oil & Gas (USA) Inc.					9. API Well No. 30-04 <b>X</b> -35440			
3a. Address	[31	o. Phone No.	include area code	(e)	10. Field and Pool or E	Explora	tory Area	
370 17th Street, Suite 1700 Denver, CO 80202		20-876-5353		ĺ	Bisti Lower - Gallup	•	,	
4. Location of Well (Footage, Sec., T., SHL: 1109' FNL and 509' FWL Sec 34, T24N, RBHL: 585' FNL and 330' FWL Sec 33, T24N, RS	R.,M., or Survey Description) 9W W				11. Country or Parish, San Juan, NM	State		
12. CHEC	K THE APPROPRIATE BOX	(ES) TO INDI	CATE NATURE	OF NOTIC	E, REPORT OR OTH	ER DA	TA	
TYPE OF SUBMISSION		<del></del>	ТҮР	E OF ACTI	ION			
Notice of Intent	Acidize Alter Casing	Deepe	n re Treat		action (Start/Resume)		Water Shut-Off Well Integrity	
Subsequent Report	Casing Repair	New (	Construction	Reco	nplete		Other	
oursequent resport	Change Plans	Plug a	nd Abandon	П Тетр	orarily Abandon			
Final Abandonment Notice	Convert to Injection	Plug F	Back	Wate	r Disposal			
Encana Oil & Gas (USA) Inc. (Enca change the intermediate hole size from the control of the cont	om 8 1/2" to 8 3/4" and incre Drilling is estimated to comm CEPTANCE OF THIS EVE THE LISSEE AND NING ANY OTHER RED FOR OFFICE	ease the inter	mediate cement		comidate the larger	RCV OIL	DAPR 10 '13 CONS. DIV. DIST. 3  F APPROVAL PROVAL Squared stipulations.	oint
for Directional Survey and "As Drilled" plat								
<ol> <li>I hereby certify that the foregoing is to Name (Printed/Typed)</li> </ol>	rue and correct.							
Amie Weis			Title Operation	ns Enginee	r			
Signature Ami i	m		Date 4	1/20	13			
	THIS SPACE F	OR FEDE	RAL OR STA	ATE OFF	ICE USE			
Approved by  Conditions of approval, if any, are attached that the applicant holds legal or equitable tentitle the applicant to conduct operations	I. Approval of this notice does notite to those rights in the subject I		ertify		Engineer	Date D	4/02/2013	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

LOC: Sec 34-T24N-R9W County: San Juan				Er	ncana Natural Gas		encana.	ENG: J. Fox/ A.	4/1/13
WELL: Escrito D34-2409 01H		)1H			WELL SUMMARY		natural gas	GLE: 6857 RKBE: 6870	
MWD	OPEN HOLE		DEPTH			HOLE	CASING	MW	DEVIATION
LMD	LOGGING	FORM	TVD	MD		SIZE	SPECS	MUD TYPE	INFORMATION
			60	60'		30_	<b>20" 94#</b> 100sx Type I Neat 48.8ppg cmt	Fresh wtr 8.3-9.2	
Surveys	None					40.444	9 5/8" 36ppf J55 STC	Fresh wtr	Vertical <1º
After csg is run	· · · · · · ·		500	500		12 1/4	TOC @ surface 178 sks Type III Cmt	8.4-8.6	
		Ojo Alamo Kirtland	758 932						
	No OH logs	Fruitland Coal	1177				7" 26ppf J55 LTC	Fresh Wtr	
Surveys every 500'		Pictured Cliffs Ss Lewis Shale	1503 1615	}	Stage tool @1550'	8 3/4		8.5-8.8	Vertical <1º
	Mud logger onsite	Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh	2258 3020 3930 4088				TOC @ surface 30% OH excess: 602 sks Total Stage 1 Lead: 277 sks Stage 1 Tail: 190 sks Stage 2 Lead: 135 sks		
		KICK OFF PT	4600			i i			
		Mancos Silt	4648						
		Gallup Top	4905						KOP 4600 10 deg/100'
		· _	5212	5869					
		horz target	5212	5870		6 1/8	200' overlap at liner top		.25deg updip 5163'TVD
Į		Base Gallup	5250				4725' Lateral	8.6-9.0 OBM	TD = 10595' MD
Surveys every 500'	No OH Logs						4 1/2" 11.6ppf SB80 LTC	Switch to OBM 8.6-9.0	
Gyro at CP MWD Gamma							Running external swellable csg packers for isolation of prod string		
Directional							Plan on setting top packer within 100' of intermediate casing shoe		

- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 9 5/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to KOP of 4600', 8 3/4" hole size,
  5) PU directional tools and start curve at 10deg/100' build rate
- 6) Drill to casing point of 5869' MD
- 7) R&C 7" casing, circ cmt to surface, switch to OBM
- 8) Land at 90deg, drill 4725' lateral to 10595', run 4 1/2" liner with external swellable csg packers

SHL: NWNW Section 34, T24N, R9W

1109 FNL and 509 FWL

BHL: NWNW Section 33, T24N, R9W

585 FNL and 330 FWL San Juan County, New Mexico

Lease Number: NM 012374 & NMNM 90843

# Encana Oil & Gas (USA) Inc. Drilling Plan

# 1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

<u>Formation</u>	Depth (TVD)
Ojo Alamo	758'
Kirtland	932'
Fruitland Coal	1177'
Pictured Cliffs	1503'
Lewis	1615'
Cliffhouse	2258'
Menefee	3020'
Point Lookout	3930'
Mancos	4088'
Gallup	4905'

The referenced surface elevation is 6857', KB 6870'

# 2. ESTIMATED DEPTH OF POTENTIAL WATER, OIL, GAS, & OTHER MINERAL BEARING FORMATIONS

<u>Substance</u>	<u>Formation</u>	Depth (TVD)
Water	Ojo Alamo	758'
Gas	Fruitland Coal	1177'
Gas	Pictured Cliffs	1503'
Gas	Cliffhouse	2258'
Gas	Point Lookout	3930'
Oil/Gas	Mancos	4088'

All shows of fresh water and minerals will be reported and protected.

# 3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi.
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.

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- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.
- j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
- k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
- I) The choke and manifold shall contain two adjustable chokes.
- m) Hand wheels shall be installed on all ram preventers.
- n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.
- o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

#### 4. CASING & CEMENTING PROGRAM

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

#### a) The proposed casing design is as follows:

Casing	Depth	Hole Size	Csg Size	Weight	Grade
Conductor	0-60'	30"	20"	94#	H40, STC New
Surface	0'-500'	12 1/4"	9 5/8"	36#	J55, STC New
Intermediate	0'-5869'MD	8 3/4"	7"	26#	J55, LTC New
Production Liner	5669'-10595'MD	6 1/8"	4 1/2"	11.6#	B80*, LTC New

	Casir	ng String		Casing St	Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	Collapse	Burst	Tension	
9 5/8"	36	J55	STC	2020	3520	394	1.125	1.1	1.5	
7"	26	J55	LTC	4320	4980	367	1.125	1.1	1.5	
4 1/2"	11.6	B80	LTC	6350	7780	201	1.125	1.1	1.5	

<sup>\*</sup>B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

#### b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

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Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Type I Neat 14.8ppg	Surface	None
Surface	500'	178sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 turbolizer per joint on bottom 3 joints
Intermediate	5212'TVD/ 5869'MD	30% open hole excess Stage 1 Lead: 277sk Stage 1 Tail: 190sk Stage 2 Lead: 135sk	Lead (Stages 1 and 2): PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuft/sk Tail (Stage 1): Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuft/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints
Production Liner*	5669'MD- 10595'MD	None – External casing packers	N/A	N/A	N/A

<sup>\*</sup>Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner.

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected.

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

# 5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 4600'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation	
Horizontal Lateral	5163'/10595'	Gallup	

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#### 6. DRILLING FLUIDS PROGRAM

a) Surface through Intermediate Casing Point:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'	Fresh Water	8.3-9.2	38-100	4-28
12 1/4"	0-500'	Fresh Water	8.4-8.6	60-70	NC
8 3/4"	500'TVD- 5212'TVD/5869'MD	Fresh Water LSND	8.5-8.8	40-50	8-10

# b) Intermediate Casing Point to TD:

Hole Size (in)	Depth (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
6 1/8"	5869'MD- 10595'MD	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

- b) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- c) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

# 7. TESTING, CORING and LOGGING

- a) Drill Stem Testing None anticipated.
- b) Coring None anticipated.
- c) Mud Logging Mud loggers will be on location from kick off point to TD.
- d) Logging See Below

Cased Hole:

CBL/CCL/GR/VDL will be run as needed for perforating control

# 8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2,439 psi based on a 9.0 ppg at 5212' TVD of the vertical pilot hole. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if  $H_2S$  is encountered, the guidelines in Onshore Order No. 6 will be followed.

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# 9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on August 15, 2013. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 25 days.